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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/490,979	01/24/2000	Timothy J. Wilsom	CM01730G	7879

22917 7590 04/10/2003

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EXAMINER

HA, DAC V

ART UNIT	PAPER NUMBER
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2634

4
DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/490,979

Applicant(s)

WILSON, TIMOTHY J.

Examiner

Dac V. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1, 2, 13, 14** are rejected under 35 U.S.C. 102(e) as being anticipated by Atkinson (US 5,883,884).

Regarding claim 1, Atkinson discloses a Wireless Digital Communication System Having Hierarchical Wireless Repeaters With Autonomous Hand-Off, which teaches the claimed subject matter in claim 1 as follows. Atkinson teaches a communication system between base station and remote unit utilizing TDM/TDMA/TDD format (Figure 1, elements 100, 110; Col. 6, lines 16-17). Consequently, Atkinson teaches transmitting outbound burst from the base station (Figure 2, Col. 5, lines 45-47; 63-64) containing a predetermined data format (Figure 4A); and receiving inbound burst from a remote unit (Figure 5; Col. 7, line 18; Col. 5, lines 65-66) having a predetermined data format (Figure 4B). Thus, Atkinson teaches the claimed subject matter "transmitting a downlink signal burst from the base transceiver station to the mobile unit, the downlink signal burst containing a selected number of bits having a first time length; and transmitting an uplink signal burst from the mobile unit to the base transceiver

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station, the uplink signal burst containing the selected number of bits having a second time length". Atkinson further teaches that the inbound bursts are longer than that of the outbound bursts because the resulting guard time (Col. 7, lines 14-16). Thus, Atkinson also teaches the claimed subject matter "wherein the first time length is shorter than the second time length thereby providing a guard time".

Regarding claim 13, Atkinson discloses a Wireless Digital Communication System Having Hierarchical Wireless Repeaters With Autonomous Hand-Off, which teaches the claimed subject matter in claim 1 as follows. Atkinson teaches a communication system between base station and remote unit utilizing TDM/TDMA/TDD format (Figure 1, elements 100, 110; Col. 6, lines 16-17). Consequently, Atkinson teaches transmitting outbound burst from the base station (Figure 2, Col. 5, lines 45-47; 63-64) containing a predetermined data format (Figure 4A); and receiving inbound burst from a remote unit (Figure 5; Col. 7, line 18; Col. 5, lines 65-66) having a predetermined data format (Figure 4B). Thus, Atkinson teaches the claimed subject matter "a base transceiver station for transmitting a downlink signal burst containing a selected number of bits having a first time length; and a mobile unit for transmitting an uplink signal burst containing the selected number of bits having a second time length, from the mobile unit to the base transceiver station". Atkinson further teaches that the inbound bursts are longer than that of the outbound bursts because the resulting guard time (Col. 7, lines 14-16). Thus, Atkinson also teaches the claimed subject matter "wherein the first time length is shorter than the second time length thereby providing a guard time".

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Regarding claim 2, Atkinson further teaches the claimed subject matter

“wherein the guard time is sufficient for the mobile unit to switch fro transmit to receive mode” in Col. 29-31.

Regarding claim 14, Atkinson further teaches the claimed subject matter

“wherein the guard time is sufficient for the mobile unit to switch fro transmit to receive mode” in Col. 29-31.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 11, 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkinson.

Regarding claim 11, Atkinson teaches almost all the claimed subject matter in claim 11, as stated above, except for the claimed subject matter “wherein the second time length is approximately 22.5 milliseconds long”. However, as indicated by Atkinson, the time bursts may be implemented using any TDM/TDMA/TDD format modifications suitable of other data or sequences (Col. 6, lines 16-18). Therefore, one skilled in the art would have understood that the claimed subject matter “wherein the second time length is approximately 22.5 milliseconds long” would have been a design specific.

Regarding claim 12, Atkinson teaches almost all the claimed subject matter in claim 11, as stated above, except for the claimed subject matter “wherein a total of the guard time is approximately 8.125 milliseconds”. Atkinson is specific about the length of “the total guard time”, however, Atkinson also is silent about that “the total guard time” could not have been “8.125 milliseconds”. Therefore, one skilled in the art would have understood that the claimed subject matter “wherein a total of the guard time is approximately 8.125 milliseconds ” would have been a design specific.

5. **Claims 3-10, 15-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkinson in view of Frodigh et al. (US 6,456,627).

Regarding claim 3, Atkinson teaches almost all the claimed subject matter in claim 3, as stated above, except for the claimed subject matter “forming the downlink signal burst using a first modulation technique; and forming the uplink signal burst using a second modulation technique”. However, the attention is now directed to Frodigh et al. patent. Frodigh et al., in the same field of endeavor, teaches a Method For Communicating Information In A Communication System That Supports Multiple Modulation Schemes. More particularly, downlink data is modulated according to one or more modulation methods (Col. 10, line 66 to Col. 11, line 6; Col. 1, lines 14-17) and uplink signal is modulated according to one or more modulation methods (Col. 10, lines 3-8). Thus, Frodigh et al. implicitly teach the claimed subject matter “forming the downlink signal burst using a first modulation technique; and forming the uplink signal burst using a second modulation technique”.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the utilization of multiple modulation method taught by Frodigh et al. into Atkinson to at least improve the flexibility of the system.

Regarding claim 4, Frodigh et al. further teach the claimed subject matter “wherein the first modulation technique has a higher-order than the second modulation technique” as that in one instance, a “higher-order” modulation method is utilized for communicating control information on control channel between a base station and a mobile station while voice or data is communicating between a mobile station and base station using a lower-order modulation method (Col. 1, lines 14-17; Col. 2, lines 25-27; Col. 4, lines 19-24, 39-44).

Regarding claim 5, Frodigh et al. further teach the claimed subject matter “wherein the first modulation technique is quadrature amplitude modulation” in Col. 4, lines 22-23, 44-45.

Regarding claim 6, Frodigh et al. further teach the claimed subject matter “wherein the quadrature amplitude modulation is a sixteen quadrature amplitude modulation” in Col. 4, lines 22-23.

Regarding claim 7, Frodigh et al. teach that “the second modulation technique” is a GMSK modulation as an illustration. However, Frodigh et al. also teach the system could support three different modulation methods including QPSK (Col. 4, lines 20-25). Therefore, it would have been obvious to one skilled in the art to realize that the use of any of those modulation methods would have been optional. Thus, Frodigh et al.

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implicitly teach the claimed subject matter "wherein in the second modulation technique is phase shift keying".

Regarding claim 8, Frodigh et al. further teach the claimed subject matter "wherein in the phase shift keying is a quaternary phase shift keying" in Col. 4, line 23.

Regarding claim 9, Frodigh et al. teach that "the second modulation technique" is a GMSK modulation as an illustration. However, Frodigh et al. also teach the system could support three different modulation methods including QAM (Col. 4, lines 20-25). Therefore, it would have been obvious to one skilled in the art to realize that the use of any of those modulation methods would have been optional. Thus, Frodigh et al. implicitly teach the claimed subject matter "wherein the second modulation technique is quadrature amplitude modulation".

Regarding claim 10, Frodigh et al. teach the use of 16QAM as an illustration. One skilled in the art would have understood that any QAM could have been utilized without departing from its scope. Thus, the claimed subject matter "wherein the second modulation technique is four quadrature amplitude modulation" would have been optional to one skilled in the art.

Regarding claim 15, Atkinson teaches almost all the claimed subject matter in claim 3, as stated above, except for the claimed subject matter "wherein the base transceiver station comprise a first modulation circuit for modulating the downlink signal burst using a first modulation technique". However, the attention is now directed to Frodigh et al. patent. Frodigh et al., in the same field of endeavor, teaches a Method For Communicating Information In A Communication System That Supports Multiple

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Modulation Schemes. More particularly, downlink data is modulated according to one or more modulation methods (Col. 10, line 66 to Col. 11, line 6; Col. 1, lines 14-17; Figure 7, element 104). Thus, Frodigh et al. implicitly teach the claimed subject matter “wherein the base transceiver station comprise a first modulation circuit for modulating the downlink signal burst using a first modulation technique”

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the utilization of multiple modulation methods taught by Frodigh et al. into Atkinson to at least improve the flexibility of the system.

Regarding claim 16, Frodigh et al. further teach the claimed subject matter “wherein the mobile unit comprises a second modulation circuit for modulating the uplink signal burst using a second modulation technique” in Col. 10, lines 3-8; Figure 5, element 64.

Regarding claim 17, Frodigh et al. further teach the claimed subject matter “wherein the first modulation technique has a higher-order than the second modulation technique” as that in one instance, a “higher-order” modulation method is utilized for communicating control information on control channel between a base station and a mobile station while voice or data is communicating between a mobile station and base station using a lower-order modulation method (Col. 1, lines 14-17; Col. 2, lines 25-27; Col. 4, lines 19-24, 39-44).

Regarding claim 18, Frodigh et al. further teach the claimed subject matter “wherein the first modulation circuit comprises a quadrature amplitude modulator” in Col. 4, lines 22-23, 44-45.

Regarding claim 19, Frodigh et al. teach that “the second modulation circuit” is a GMSK modulation circuit as an illustration. However, Frodigh et al. also teach the system could support three different modulation methods including QPSK (Col. 4, lines 20-25). Therefore, it would have been obvious to one skilled in the art to realize that the use of any of those modulation methods would have been optional. Thus, Frodigh et al. implicitly teach the claimed subject matter “wherein in the second modulation circuit comprises a phase shift keying modulator”.

Regarding claim 20, Atkinson teaches almost all the claimed subject matter in claim 11, as stated above, except for the claimed subject matter “wherein the first time length is approximately four milliseconds more than the second time length”. However, as indicated by Atkinson, the time bursts may be implemented using any TDM/TDMA/TDD format modifications suitable of other data or sequences (Col. 6, lines 16-18). Therefore, one skilled in the art would have understood that the claimed subject matter “wherein the first time length is approximately four milliseconds more than the second time length” would have been a design specific.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kolze et al. (US 6,285,681) disclose a Variable Length Burst Transmission Over The Physical Layer Of A Multilayer Transmission Format.

Furuya (US 5,577,087) discloses a Variable Modulation Communication Method And System.

Rasane (US 6,330,230) discloses a Data Transmission Method.

Ward (US 5,663,958) discloses a Method And Apparatus For Dynamically Selecting The Length Of Mobile Station Burst Communications On The Reverse Digital Control Channel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 703-306-5536. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-746-5813 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-5500.

Dac V. Ha
Examiner
Art Unit 2634

DH
April 1, 2003


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